SINUMERIK 810D / 840D
Upgrade Instructions
ShopMill V06.04.23

2011-02-15

Upgrade ShopMill 06.04.23

MMC software:	V06.04.23.01(based on HMI Embedded V06.05.80.01)
SM PLC:	V06.04.11/01(PLC GP 06.05.02)
Standard cycles:	06.05.24.04
Standard measuring cycles:	06.03.36.05

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1. CD structure:

Compat.xls: The version dependences of this ShopMill version are documented in this file.

Documentation: (a reader to open the PDF documents is available under http://www.adobe.com.
Attention: Please do not install this reader on the control)

BNM_1004_e.pdf
User manual "Measuring Cycles".
This user manual addresses the user and describes the scope of functions of the measuring cycles.

FBSP_0205_e.pdf
Description of ShopMill functions:
The complete installation is described here, among others.

HMI_PP_Regie_e.pdf
Description for Regie.ini.
Is needed if you want to add some of your own applications to the PCU50/70.

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IAM_BE1_0304_e.pdf
Description of the function “Expanding the Human-Machine Interface”.

IAM_IM2_NetworkManager_0304_e.pdf
Description for the network connection with PCU20

PGZ_Schwenken_HighSpeed_1004_e.pdf
Description for Cycle800 (special cycle for swiveling tables / heads) and Cycle832 (special cycle for mold making).

Protocols\abnpro_e.doc
Acceptance certificate for the machine after setup.

NC_SW: Here you find the NCK version that works with this ShopMill version for the corresponding hardware.

PCU20: Here you find the software for installation on a PCU20 hardware. There is a flash image available in the Flash directory in all resolutions (OP10, OP12 and OP15) and all 6 standard languages.

PCU50_70: Here you find the software to install ShopMill on a PCU50 or PCU70 hardware.

PLC_Toolbox: Here you find the PLC tool box.
For further information please read the ”SiemensE.wri” in this directory.

Tools: Here you find the cycles, machine data and setting data for ShopMill.
It also includes the ”Net_Server” required to integrate a PCU20 into the network.

2. General information:

Only upgrade in the metric system of units!

The option "work step programming" is required to create ShopMill programs.

Swiveling with semi-automatic axes (no NC axes) has not been enabled.

Use of the part counter
Previously the part counter (SETPIECE) was automatically handled at the end of the program.
However, as SETPIECE causes a preprocessing stop (STOPRE) and slows down program repetition, the corresponding instructions were removed from the Siemens cycles.
Users who want to use the part counter have to add the following G code blocks at the end of the program:

```
  SETPIECE(1)    ;* increase quantity by 1
  SETPIECE(0)    ;* delete T number
```

Available additional languages will have to be installed again after the upgrade.

3. Changes in the machine data from ShopMill 6.3 to ShopMill 6.4:

File CMM.8x0 under sw_6_4\tools\disk01\md\
Machine data that have been added:

```
N10602 $MN_FRAME_GEOAX_CHANGE_MODE=1            ;exact
N19340 $ON_PROG_MASK='H5'                       ;exact: bit0=1, bit2=1
N19500 $ON_ASUP_MASK=1
N10700 $MN_PREPROCESSING_LEVEL='H25'            ;exact: bit0=1, bit2=1, bit5=1
N10722 $MN_AXCHANGE_MASK='H4'                   ;exact: bit2=1
N11602 $MN_ASUP_START_MASK='H1'                 ;exact: bit0=1
N11604 $MN_ASUP_START_PRIO_LEVEL=64
N17530 $MN_TOOL_DATA_CHANGE_COUNTER='HF'        ;exact: bit0=1, bit1=1, bit2=1,
bit3=1
N18210 $MN_MM_USER_MEM_DYNAMIC=10000            ;minimum
N18351 $MN_MM_DRAM_FILE_MEM_SIZE = 200          ;variable
N20152 $MC_GCODE_RESET_MODE[12]=0               ;exact
N24007 $MC_CHSFRAME_RESET_CLEAR_MASK='H20'      ;exact: bit0=0, bit5=1
N24805 $MC_TRACYL_ROT_AX_FRAME_1=1              ;exact
N24855 $MC_TRACYL_ROT_AX_FRAME_2=1              ;exact
N27880 $MC_PART_COUNTER='H101'                  ;variable
N28083 $MC_MM_SYSTEM_DATAFRAME_MASK='H1F'       ;exact: bit0=1, bit5=0, bit6=0
N28450 $MC_MM_TOOL_DATA_CHG_BUFF_SIZE=80        ;minimum
N28560 $MC_MM_SEARCH_RUN_RESTORE_MODE='H1'      ;exact: bit0=1
```

The following machine data are no longer used by ShopMill:

```
N42480 $SC_STOP_CUTCOM_STOPRE=0                 ;exact
```

Machine data whose contents have been modified:

```
N19250 $ON_USER_MEM_BUFFERED=7                  ;minimum
N18088 $MN_MM_NUM_TOOL_CARRIER=1                ;multiply the minimum quantity of the
data blocks required with the quantity of the channels set
N18120 $MN_MM_NUM_GUD_NAMES_NCK=20              ;minimum
N18130 $MN_MM_NUM_GUD_NAMES_CHAN=250            ;minimum
N18150 $MN_MM_GUD_VALUES_MEM=40                 ;minimum
N18170 $MN_MM_NUM_MAX_FUNC_NAMES=160            ;minimum
N18180 $MN_MM_NUM_MAX_FUNC_PARAM=1800           ;minimum
N18230 $MN_MM_USER_MEM_BUFFERED=2350            ;minimum
N20310 $MC_TOOL_MANAGEMENT_MASK='H80400B'       ;minimum
N27860 $MC_PROCESSTIMER_MODE='H33'              ;exact: bit0=1, bit1=1, bit4=1,
bit5=1
N28010 $MC_MM_NUM_REORG_LUD_MODULES=20          ;minimum
N28020 $MC_MM_NUM_LUD_NAMES_TOTAL=800           ;minimum
N28040 $MC_MM_LUD_VALUES_MEM=200                ;minimum
N42980 $SC_TOFRAME_MODE=2000                    ;exact
```

Recent additions to range of display machine data:

```
9014 $MM_USE_CHANNEL_DISPLAY_DATA=0             ;exact
9422 $MM_MA_PRESET_MODE=1
9426 $MM_MA_AX_DRIVELOAD_FROM_PLC1 machine index=0
9427 $MM_MA_AX_DRIVELOAD_FROM_PLC2 machine index=0
9428 $MM_MA_SPIND_MAX_POWER=100
9429 $MM_MA_SPIND_POWER_RANGE=200
9480 $MM_MA_SIMULATION_MODE=-1
9481 $MM_MA_STAND_SIMULATION_LIMIT=200
9640 $MM_CTM_ENABLE_CALC_THREAD_PITCH=0
9646 $MM_CTM_FACTOR_O_CALC_THR_PITCH=0,6134
9647 $MM_CTM_FACTOR_I_CALC_THR_PITCH=0,5413
9706 $MM_CMM_GEOAX_ASSIGN_AXIS_4=0
```

```
9707 $MM_CMM_IGEOAX_ASSIGN_AXIS_5=0
9725 $MM_CMM_ENABLE_QUICK_M_CODES=0
9727 $MM_CMM_ENABLE_POS_A_B_AXIS=0
9728 $MM_CMM_DISPL_DIR_A_B_AXIS_INV=0
9729 $MM_CMM_G_CODE_TOOL_CHANGE_PROG=-
9747 $MM_CMM_ENABLE_MEAS_AUTO=1
9748 $MM_CMM_MKS_POSITION_MAN_MEAS=0
9777 $MM_CMM_ENABLE_TIME_DISPLAY='H7F'
9708 $MM_CMM_INDEX_SPINDLE_2=0                ;axis index of the second spindle
9719 $MM_CMM_OPTION_MASK ='H1000'            ;bit12=1 image „additional axes“
9855 $MM_ST_CYCLE_TAP_SETTINGS=0
```

When the software is upgraded, the display machine data are not initialized with defaults. For this reason, they must be checked according to the Description of Functions.

4. Extensions of PLC interface from ShopMill 6.3 to ShopMill 6.4:

Basic PLC program: 06.05.02

5. Changes to sample cycles from ShopMill 6.3 to ShopMill 6.4

5.1 L6.SPF:

In the case of most machines, the M6 for the tool change is redirected to an L6 cycle. An example of such a cycle can be found under \tools\disk01\cycles\eng. It is essential to maintain the basic structure of this sample so that block search and simulation of ShopMill can be operated.
This cycle is stored in the user cycle directory when it is loaded into the control.
No change required.

5.2 TOOLCARR.SPF:

An example of such a cycle can be found under \tools\disk01\cycles\eng. This cycle is stored in the standard cycle directory when it is loaded into the control. This cycle has been expanded and must be used. Please copy this cycle to the OEM or user directory where you can make any adjustments and extensions.
New brands in the TOOLCARR.SPF:
_M14 = Retreat after swivel
_M15 = Retreat after block search
_M46 = Free driving after block search

5.3 CLAMP.SPF:

An example of such a cycle can be found under \tools\disk01\cycles\eng.
This cycle is stored in the user cycle directory when it is loaded into the control.
No change required.

5.4 COMMON.COM:

An example for a cycle like that is available under \tools\disk01\cycles.
This file is stored in the user cycle directory when it is loaded into the control (PCU 20). The file must not be loaded in the case of a PCU 50.
The global variables CHK_FILE_EXIST=1 and LOGSIZE=30 were removed from the file and are preset with the above mentioned values.

5.5 CYCLE198.SPF and CYCLE199.SPF:
The measuring cycles call the cycles CYCLE198 and CYCLE199 before and after the measuring procedure. In these cycles, one can then correspondingly enable the probe etc.
An example of such a cycle can be found under \tools\disk01\cycles\eng.
This cycle is stored in the standard cycle directory when it is loaded into the control. Please copy this cycle into the OEM or user cycle directory and change it there.
Cycle CYCLE198.SPF was extended by the variant "Workpiece measurement with Cycle997" (automatic sphere measuring).
Cycle CYCLE199.SPF was extended by the variant "Workpiece measurement with Cycle997" (automatic sphere measuring) and measuring in JOG/ShopMill.

5.6 CYC_832T.SPF:
CYC_832T is a technology cycle for the "High Speed Settings" cycle CYCLE832.
Machine-specific adaptations can be made at marks _M0 to _M4.
_M4 = init CYCLE832
_M0 = deselect CYCLE832
_M1 = machining Finishing cut
_M2 = machining Rough-finishing
_M3 = machining Roughing

An example of such a cycle can be found under \tools\disk01\cycles\eng. This cycle is stored in the standard cycle directory when it is loaded into the control. This cycle has been expanded and must be used. Please copy this cycle to the OEM or user directory where you can make any adjustments and extensions.

5.7 to_mill.ini:
With file to_mill.ini you can change the human-machine interface of the tool management. An example is shown under \tools\disk01\sd. This file has been extended for tool type ‘tap’.
In order to activate to_mill.ini, MD9478 bit8 = 1 must be set.
New functions are described in the chapter 8.10.4 to 8.10.7 of the SINUMERIK 840D sl Installation and Start-Up Manual CNC Part 3 (ShopMill) – 08/2005 Edition

Note:
When the bit has been set and no to_mill.ini is available, the following message is displayed when the human-machine-interface is loaded:
Tool management: file error on INI file read-in

6. Upgrade PCU 20/50

6.1 Upgrade PCU 20

6.1.1 General:

Installation is possible using a PC/PG under the operating systems Windows NT4.0, Windows2000 and Windows XP.

With the installation program, the application parameters can be modified, meaning that
- languages can be changed
- text can be added or edited

- additional languages can be selected
- operator panel machine data and MPI parameters (NETNAMES.INI) can be changed or replaced
- extending the human-machine interface

A data backup is created as follows:
Switch on the PCU20; press key “6” in the update menu to start it.
By pressing "8", the entire flash image of the PCU20 can be transferred to an ATA or Compact Flash Card with PCMCIA adapter.

6.1.2 Installation of the system software

There is a flash in the directory \pcu20\flash in all resolutions (OP10, OP12 andOP15) and the 6 standard languages.

In order to install the software, start SETUP.EXE available in directory \sw_6_4\pcu20\Installation-disk. The software will then be installed in a selected directory (defaulted with \HMI_0_2). In order to make the desired configuration, call a SETUP.EXE again under the new directory created (e.g. \HMI_0_2\INSTUTIL). The Flash image (PCU_20.ABB) will be stored in the freely selected path and can then be copied to a compact flash card.

A ShopMill ramp-up screen (custom.bmp), the to_turn.ini and hardkey configuration files (keys.ini, shopturn.ini etc.) can be integrated as follows:
Own files => Add new files => Other (*.*)

The CompactFlash Cards with 32 MB (6FC5313-1AG00-0AA0), 64 MB (empty card; order number 6FC5313-2AG00-0AA0) and a PCMCIA adapter for CF Cards (commercially available) http://www.sandisk.com/retail/pca.asp are available for operation with the SINUMERIK PCU 20 operator component.
The 16 MB image requires at least a 32 MB CompactFlash Card. The image "\PCU_20.ABB” must also be stored in the root directory of the CompactFlash Card.

The ABB file "\PCU_20.ABB” can be transferred directly to the Compact Flash Card.

For example:
- With a PG or notebook via PCMCIA and common Compact Flash Adapter
- With a commercially available USB card reader that supports CF Cards
- Through an existing network connection by using the Copy + Paste function in the Programming area.

Load PC card in PCU 20.
1. Switch the control off.
2. Insert the previously created CompactFlash Card into the PCU20.
3. Switch the control on.
4. During run-up of the PCU 20, press key ”6” when the message ”PCU20 Boot Software” is displayed.
5. Then use the key sequence "0" "0" or "-" (i.e. with/without configuration data) to burn the image to the internal EPROM of the PCU20.
6. The PCU20 will then start up automatically with the new SW release.

6.2 Upgrade PCU 50

6.2.1 General:

If you would like to install ShopMill on the PCU 50, the HMI Advanced software (for version, see compat.xls) must already exist on the PCU 50.
ShopMill Open will be installed automatically. An already installed Classic version is uninstalled and any files existing in the ADD_ON directory will be renamed to *.SAV.

Installation/SOFTWARE UPGRADE via USB on PCU 50
==========
Copy the contents to any directory of the USB hardware (stick / card reader...).

Power up the PCU 50 on the desktop as follows.
Switch on the PCU 50, and when the PCU basic software release message appears, e.g. "V08.xx.xx.xx", press key "3", and then enter the password, e.g. "SUNRISE".

Plug in the USB hardware, for example into the USB socket on the front of the OP. After WIN XP has recognized the hardware, copy the contents of the directory to D:\INSTALL.

Installation of the software:

Switch the PCU 50 off and then on again. The installation takes place automatically during the power up on of the PCU software,
or by calling SETUP.EXE from the directory D:\INSTALL.

When installing by calling SETUP.EXE, delete the contents of D:\INSTALL before switching off the PCU 50 to avoid a double installation after switching the PCU 50 off and on again.

==========
Installation/SOFTWARE UPGRADE from the network onto PCU 50
==========
This installation method can be used only if the PCU 50 has an existing network link which enables data to be transferred directly to the PCU 50 hard disk.

Copy the contents of the disks into any directory of a networked PC / PG.

Power up the PCU 50 on the desktop as follows.
Switch on the PCU 50, and when the PCU basic software release message appears, e.g. "V08.xx.xx.xx", press key "3", and then enter the password, e.g. "SUNRISE".

All files in the installation package then have to be copied via the network to D:\INSTALL on the PCU 50.

Installation of the software:

Switch the PCU 50 off and then on again. The installation takes place automatically during the power up on of the PCU software,
or by calling SETUP.EXE from the directory D:\INSTALL.

When installing by calling SETUP.EXE, delete the contents of D:\INSTALL before switching off the PCU 50 to avoid a double installation after switching the PCU 50 off and on again.

In addition, check the version of the cycle support. It must correspond to the delivered cycle version or higher. The cycle support files for the measuring cycles (MCSUPP.ARC) and standard cycles (SCSUPP.ARC) are stored under Archive\Cycle archives.

7. How to proceed when upgrading the NCK:

- Save all sensitive data separately (e.g. tools).
- Save global user data (NC Active-Data => User data => User data complete => Data Off in archive)
- Read out NCK series start-up file
- Load/plug current NCK.
- General reset
- Read in NCK series start-up file.
- Adjust machine data (see above) Attention: No NCK reset!!!!
- Read out NCK series start-up file
- Read in NCK series start-up file.
- Unload definitions.
- Read in cycles and definitions from the tool box or SM_CYC.ARC and SM_DEF.ARC.
- Load definitions (GUD7_JS.DEF, GUD7_MC.DEF, GUD7_SM.DEF, GUD7_SC.DEF, SMAC_SM.DEF and SMAC_SC.DEF)
- Activate the definitions (GUD5.DEF, GUD6.DEF, GUD7.DEF and SMAC.DEF) while the PLC is in RUN mode or the NC in "Channel RESET" mode.
- Read in global user data (Data On => from archive) Alarms 15180, 15186 and 12550 E_TC_FR not defined are possible, as this GUD no longer exists.
- Reload tool data
- Initiate NCK reset
- Delete TEMP workpiece

8. PLC upgrade:

- Transfer - FC30-35 and
- DB81-87 to the user project and to the PLC

For NCK 0704XY the corresponding basic program from the tool box must be used in addition, as only the basic program modules from tool box 0605 are delivered together with ShopMill.

9. Tool change

9.1 Manual tools

The standard tool management was extended by the Manual tools function.
Tools which are not assigned to any magazine are now automatically interpreted as manual tools by the NC (tool management). The function must be activated via the machine data.

Commissioning:
- Set channel machine data 22562 bit 1=1 (display machine data 9722 has been omitted)
- Integrate manual change in tool change cycle (scan system variable $A_TOOLMN,

$A_MYMN)
- Integrate manual change in PLC user program (scan DB72 signals "Load/unload manual tool")

Changes on the sample cycle L6.SPF are listed under 5.

10. Swiveling

Swiveling is controlled via the standard swivel cycle CYCLE800. This is automatically called up by ShopMill. User-specific adaptations (e.g. door unlocking during tool change) can be implemented in the user cycle TOOLCARR. The retract position in Z need not be entered in the user cycle TOOLCARR (is now an input field in the start-up screen). The user cycle TOOLCARR is called up automatically by CYCLE800.
Start-up:
- Set display machine data 9723=1.
- Activate standard start-up screen for swivel cycle (change STARTUP.COM and AEDITOR.COM, see SIEMENSE.TXT in CST\HLP.DIR)
- Input swivel data via standard start-up screen (TCARR parameters 1 through 40 are used).
- Load and change swivel cycle TOOLCARR, if required (machine adaptations).
- Adjust the input screen form for swivel cycle ("Display options" in start-up screen form)

10.1 Changed behavior after block search

Old:
The tool is retracted according to the swivel data set (start-up).
New:
The tool is retracted as last defined in the part program.

Changes to the sample cycle TOOLCARR.SPF are listed under 5.

11. Multiple clamping

The multiple clamping function can be used for two-dimensional and rotating clampings.
Multiple clamping with the same programs is not an option, multiple clamping with different programs is an option.
Start-up:
- Set option machine data.
- If rotating clampings shall be used, the cycle CLAMP (available under cycles/D on the toolbox) must be loaded under user cycles or manufacturer cycles.

The necessary machine adaptations must then be performed in this cycle.
Changes to the sample cycle CLAMP.SPF are listed under 5.

12. Extending the human-machine interface

Every entry softkey for "Extend user interface" must be listed in the file "COMMON.COM".
For all versions on the PCU20, all additional files for "Extend user interface" are expected under the directories Manufacturer Cycles or User Cycles in the NC or on the flash image.
The BMP images are expected only on the flash image.

During installation, a COMMON.COM is stored under standard cycles.
This contains all exits that are required for cycle support.
This file must be unloaded on the PCU50 and loaded on the PCU20.
If it is desired to use additional exits, another COMMON.COM must be created under Manufacturer Cycles or User Cycles.
(Example is available on the tool box under Cycles)

PCU50:
All additional data for "Extend user interface" are expected under the directories Manufacturer Cycles or User Cycles on the hard disk.
The BMP images are expected under the directories
Manufacturer_cycles\hlp.dir\1024.dir for 15" displays
Manufacturer_cycles\hlp.dir\800.dir for 12" displays
Manufacturer_cycles\hlp.dir\640.dir for 10" displays
User_cycles\hlp.dir\1024.dir for 15" displays
User_cycles\hlp.dir\800.dir for 12" displays
User_cycles\hlp.dir\640.dir for 10" displays

12.1 New entry softkeys

In ShopMill, you are not allowed to specify dimensions for the configuration of the main screen form part. The position and size of the different main screen form parts are defined depending on the operating area and the mode of operation. This applies only for the screen forms that are called up via entry softkeys.

SC 818 machine, manual, horizontal softkey 8 (already available)
Area: status display, position display, input window
X pos. = 0
Y pos. = 34
Height = 396
Width = 556

SC 8181 machine, manual, horizontal softkey 8, medium size
Area: position display, input window
X pos. = 0
Y pos. = 78
Height = 352
Width = 556

SC 8182 machine, manual, horizontal softkey 8, small size
Area: input window
X pos. = 0
Y pos. = 254
Height = 176
Width = 556

SC 826 machine, automatic, horizontal softkey 6 (already available)
Area: program display
X pos. = 0
Y pos. = 254
Height = 176
Width = 556

SC 8261 machine, automatic, horizontal softkey 6, medium size
Area: position display, program display
X pos. = 0
Y pos. = 78

```
      Height            = 352
      Width       = 556

SC 8262 machine, automatic, horizontal softkey 6, large size
      Area: status display, position display, program display
      X pos.      = 0
      Y pos.      = 34
      Height            = 396
      Width       = 556
```

Changes to the sample file COMMON.COM are listed under 5.

13. Measuring

The measuring cycles call the cycles CYCLE198 and CYCLE199 before and after the measuring procedure.
In these cycles, one can then correspondingly enable the probe etc.

Measuring cycle support in the G code editor can be activated as follows:
(This information supplements the SINUMERIK 840D / 840Di / 810D Description of Functions ShopMill (FBSP) – 11.03 Edition, Section 9.6)
Load the archive MCSUPP from the directory ARCHIVE\ZYKLENARCHIVE\MCYC.
If you also want to use the measurement results screens, you have to load the archive MCRESULT from the directory ARCHIVE\ZYKLENARCHIVE\MCYC.
If the version of the standard measuring cycles supplied with ShopTurn differ from the version of the measuring cycles of HMI Advanced (see ARCHIVE\ZYKLENARCHIVE\MCYC\VERSION.ARC) in the first four digits (for example 06.02), you have to load the archive MCYCMILL from the directory ARCHIVE\ZYKLENARCHIVE\MCYC.

Changes to the sample cycles CYCLE198.SPF and CYCLE199.SPF are listed under 5.

14. Spindle control

The Spindle CW/CCW/Off keys can be used to control the spindle directly from the machine control panel. The speed can be preset via the ShopMill softkey "T,S,M".
ShopMill provides a PLC block for spindle control (STL source in PLC toolbox).
Attention: For e.g. OP32S dual function of keys Spindle CW/CCW/Off (Spindle CW/CCW/Off implemented by PLC block of ShopMill, Spindle Enable/Spindle Stop implemented by basic program module for machine control panel)
ShopMill controls the spindle via new spindle interface signals (spindle data block DBB30). For this purpose, the ShopMill PLC sets the interface signals "Spindle Start CW, Spindle Start CCW, Spindle Stop" in the spindle DB.

Commissioning:
- Integrate ShopMill PLC module for spindle control into PLC user program
  (check interlocking logic for spindle enable/spindle stop)

If the system ASUB "PROG_EVENT" is used on program start or end or reset, it must be copied out of the OEM cycle directory into the user cycle directory and ended with the M function from N10714 $MN_M_NO_FCT_EOP=32 ;variable.

15. Test run

During the test run, the NC does not issue any setpoint values to the axes/spindles, i.e. the PLC user program is also not permitted to initiate machine functions (e.g. tool change, coolant) during the test run.
Exception: Tool change must nevertheless be executed "internally" in the control so that the tool data are available for program execution.

The NC (tool management) executes the "internal" tool changes in the control automatically, i.e. the PLC module of ShopMill 5.1 is no longer required.
Start-up:
- Integrate test run into tool change cycle (scan system variable $P_ISTEST)
- Integrate test run into PLC user program (scan DB21 signal "Test run active" for all machine functions which are not to be executed during dry run)

16. Block search

During block search it has to be assured that the correct tool is available in the spindle before program execution starts. ShopMill has automated this procedure, i.e. it will automatically execute a possibly required tool change (ShopMill cycle E_S_ASUB).
For a block search to a tool that already exists in the spindle, the tool management expects an acknowledgement (from NCK5).
This is reported with DB72.DBW24 = 9998 and DB72.DBW26 = 1.
It should be tested in the PLC whether the spindle tool corresponds to the tool to be newly loaded and this should be negatively acknowledged (Reset FC8).
The ShopMill cycle E_S_ASUP is called up via system ASUP (PROG_EVENT).
The spindle start can be prevented via machine data MD11450 bit2.
Start-up:
- Integrate block search into tool change cycle (check system variable $P_SEARCH)
- Set machine data MD11450 bit2=1 (included in ShopMill machine data block "CMM.8X0")

17. Reservations

- Extended M functions -> 100 and 101 (can be set via display machine data 9684 and 9685 and via DB82.DBB12/13 for the PLC)
- The system cycle "Prog_Event" is used by standard cycles and by ShopMill. If the "Prog_Event" is also to be used for user functions, it must be copied from the OEM cycle directory into the user cycle directory and ended with the M function from MD10714 M_NO_FCT_EOP. One can now create a CYCPE_US.SPF cycle under user cycles or OEM cycles. This cycle must be ended with the M function MD10714 M_NO_FCT_EOP as well.

18. Tips & tricks

18.1 An NCK reset is necessary before a start is possible in the Start-up operating area (Open variant only).

Error corrections and improvements in ShopMill 06.04.06
==========
ERLde68739: Multiple clamping: Illegal program step
MGLdm01184: Multiple clamping: Illegal program step between two multiple clampings
MGLdm01194: Multiple clamping: Expansion by “Hide positions from hole matrix”
MGLdm01344: When deleting a program, the user interface is immobilized for 30 secs.
ERLde80907: YSNC: When selecting the MPF0 program, the program should be opened in the G code editor.
ERLde80880: Line break corrected in OEM SK texts.
MGLdm01348: Fault correction for transfer via RS-232-C, loading and unloading of

programs with subroutines
MGLdm01336: Fault correction “Save tool data”: If within an SM/ST program the step is T=0, alarm 112400 “Not available in tool management” is given when an attempt was made to save the tool data.
CHMdc09034: In the case of “Swivel no” take account of plus/minus (correction).
MGLdm01255: Logic error in retraction logic -> Internal cycle error (2).
MGLdm01168: Swivel: In the case of an automatic and a semi-automatic rotary axis, a message is given for manual axis.
ERLde78697: When the EPS_Network (remote diagnostics) is installed, the master control is not acknowledged when exiting.
MGLdm01355: Alarm 61263 when calling program with position pattern

Error corrections and improvements in ShopMill 06.04.08
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MGLdm01348: Fault correction for transmission via V24, for handling of subroutines with MPF extensions and for loading file MPF0
MGLdm01302: Note the protection level for tool monitoring
MGLdm01380: Tool management – Keep the cursor position after sorting
MGLdm00980: The search function in the ShopMill editor now works properly when searching for the contents of G code steps.
ERLde80385: Recompiling in G code editor can now also open cycles without hidden lines in the wizard
MGLdm01212: Fault correction in data backup: The work offsets created through „Data backup“ will be restored to the wrong axis, if the channel axis names have different lengths.
ERLde80389, MGLdm01356: As soon as the limit of 20 technologies and pos. samples is reached, the error “invalid array index” will be displayed. E_manage adjusted.
CHMdc09194: Default values newly added for MD9778/9779 in bd_sm.tea.
MGLdm01213: For linear engraving a Cartesian reference point had a polar effect.
MGLdm01230: Quantity (SETPIECE) was decremented in e_tfs to G code program during block search.
MGLdm01392: Tool status bits are deleted on creating and deleting tools
MGLdm01269: Elimination of the WO problem (WO must not be re-defined) was checked in the measuring cycles. E_SP_NPV will no longer be used for MZYK_840D_06.03.28.00 and higher. See E_MT_LEN for cycle adjustment.
MGLdm01394: Support Transmit after block search.
MGLdm01219: OPEN: When F10 and Edit are pressed quickly after program selection, the program will be displayed incomplete.
MGLdm01253: When different machine axes are assigned to the channel through function “Container axes”, the axis identifiers in the MCS display will no longer be correct.
ERLde81566: Position of the side view for help display adjusted in Measure tool and Boring.
MGLdm01207: Display machine data 9440 NB_MM_ACTIVATE_SEL_USER_DATA was not considered on entry of the work offset.
MGLdm01393: On processing from external source and program start from a screen other than Machine the program is not selected.

Error corrections and improvements in ShopMill 06.04.08
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MGLdm01437: Swivelling with 2 channels -> incorrect array index
MGLdm01447: Contour milling: use option “Residual material” for “Spigot residual material”, too.

Error corrections and improvements in ShopMill 06.04.09
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ERLde82245: External program selection through wizard screen was temporarily impossible.

AP00357768: Alarm 61262 "Lead not possible with selected tool“ is displayed on tapping in inch.
ERLde88214: The search function in the Help system cannot be used.
MGLdm01418: Problem resolved for read-in of a tool list with other tools available.
MGLdm01443: If bit 2 has not been set in TO_OPTION_MASK, OEM tool data will not be read.
MGLdm01468: Retraction in tool direction optimized as best as possible.
MGLdm01466: When work offset data were saved with “backup all data used in the program”, the work offset in the program header was not backed up as well.
MGLdm01463: On chamfering of the pocket, spigot and groove to position pattern, the message “Reference plane defined incorrectly” was displayed.
CHMdc08193: Fault correction in cycle72 caused an adjustment of cycle e_mi_con. With roughing and G40 in cycle e_mi_con always transfer _UXY=0 to cycle72.
AP00363910: An unselected program cannot be edited, when the NC is started under Editor.
AP00355764: During manual unloading of a tool in the spindle the main screen is not updated from time to time.
AP00366922: In ShopMill the screen number is sometimes not updated correctly in the PLC.
AP00355763: YSNC, adjustment for Complete Installer
AP00369071: YSNC OEM SKs: The OEM softkeys should not be permitted for simultaneous recording.

Error corrections and improvements in ShopMill 06.04.12
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AP00355763: ShopMill 6.4 with HMI Adv 7.3 is to run on YSNC. For this purpose IB.zus file must be stored in InstallShield depending on the HMI Adv version.
AP00357768: Alarm 61262 "Lead not possible with selected tool" during tapping in inch -> _EPS even more increased!
AP00371726: with a new G code program, the editor is locked after deleting two times
AP00375411: incorrect wallpaper: during switchover between Maint. and YSNC_Runscreen, value"0" is sporadically transmitted to the interface instead of an image number.
- Toolcarr(14/15) new: exit after swiveling/block search -> enable retraction (changes in TOOLCARR).
AP00377897: YSNC_Runscreen: when an OEM task is called by ShopMill, it must be treated like a ShopMill task.
- taskconf.ini adjusted(Vsk4Accesslevel=1)
AP00355832: MGLdm01393: bug fixed with regard to execution from hard disk
AP00355832: MGLdm01393: bug fixed with regard to execution from hard disk (Yaskawa RunScreen)
- swiveling: retraction tool direction max., _DLIMIT=0 may cause problems –> set a low value.
- YSNC: adjust Taskconf.ini for HMI Adv 7.3.
- YSNC: adjust IBMD.ZUS for HMI Adv 7.3.
AP00412232: YSNC: Remove softkey "Save data" in the program manager for YSNC.
AP00390611: Crash when all WOs used in the programm and then all tools used in the program were saved with the same *.ini name.
AP00368978: Bugfix, interpreter
AP00401447: CR 060566-1: (fixed for Base 06.05.66.00 and higher) tool management gets mixed up when more than 350 tools are used
AP00376294: when a code larger than 5k was copied and then pasted in another program, additional code was created after a one-time interpretation.
AP00396290: MD9718 Bit2; G500 active nevertheless; error in screen form Manual swiveling
AP00399335: machine data for circular rapid traverse was not transferred to GUD E_MD9724
AP00371726: CR 060564-2: (fixed for Base 06.05.64.00 or higher) ShopMill G code editor: deleting first program line using backspace causes problem
AP00392664: work offsets did not work from a program that was generated via multiple

clamping
- CR060566-4: Simulation: Parameter: type of tool monitoring also output in log file

AP00397781: Open/YSNC: a direct jump to the "Set WO" screen is not possible. The basic Manual mode is always displayed.
AP00400903: Open/YSNC: unintentional reactions after loading of several programs HD->NC and screen change.
- avoiding software limit switch with E_SP_RP: some cycles do not yet travel to the starting point in XY.
- Screen form "All axes" shifted downwards to make the status display visible

AP00388241: Open/YSNC: program for execution from external source is not displayed, although Automatic mode is selected.
- Open: remove IB.ZUS when the versions are installed on HMI Adv 7.2 or 7.3.
- YSNC: remove both directory add_on\ibmd and file ibmd.zus (otherwise the Licenses softkey is not output).

AP00412796: Inch/Metric conversion is missing in the E_SP_CHA chamfering cycle
AP00431894: OFFN was set to 0 after block search

Error corrections and improvements in ShopMill 06.04.13
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AP00433534: CR 060567-1: TOOLMAN - Error corrections 11, 21, 31 etc. magazine
AP00355858: TOOLMAN - NCK crash, load tool, no PLC acknowledgement, delete tool and acknowledge
AP00455794: Load tool in gripper
AP00474838: RQ: AP00475211 Cycle800 polls more than two MDs in one block
AP00477901: RQ: AP00478008: Wrong direction when retracting on retraction plane after swivelling.
AP00477937: RQ: AP00478011: Modal retraction after block search leads to error message.
- It should also be possible to use axes in lieu of rotary axes which have been declared spindles.

Error corrections and improvements in ShopMill 06.04.16
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- CR 060569-01: Crash in TOOLMAN eliminated
- Troubleshooting for writing in the PLC
- In the case of communication errors with the PLC several writing attempts are started now

AP00378913: Check for groove side offset under path milling
AP00378913: Fault corrected in CYCLE72 - Alarm 61112 not for groove side offset
AP00511168: CR060569-05 troubleshooting for PI service PI_N_TMPOSM – Position magazine
- Switch off Log on/off PLC event lists (switchover between HMI and ShopMill task is slow)
- Extend trace with return value and unique ID: if PLC communication errors occurred on writing.

AP00520297: Fault corrected regarding the unit in the workpiece measurement masks
AP00401451: Logic adjusted for Delete TEMP files
- CR 060569-04: PCU 50 crashes in cmm_start (), if Appsight has been started. (base 06.05.72.00 or higher)
- Fault correction regarding tool data backup

AP00561416: Various problems with program files of type SPF
AP00568103: If the program for execution from hard disk has been selected, it is not possible to select Overstore.
AP00568108: Control mode switchover no longer possible after Overstore.
AP00568093: The cursor will not jump back to program start, if an external program is selected via PLC.
AP00568099: Incorrect display of the work offset.

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AP00573794: AP00573800: During "Execution from external source" a gray bar
              sporadically appears in the program step display; the
              cursor will not jump back to program start after Reset.
            - If the CTM_TRACE bit 9 is set to ON, then mask out inch/metric
              switchover under the TSM unit of measurement.
            - Maximum length of the alarm.log is too small. If PCU 50, then
              increase size to 1MB, otherwise leave as it is.
AP00573899: Do not permit copying of the selected program, if the program
            (Execution from external source) has been selected.
            - With inch/metric switchover, store the state in the GUDs in GUD
              E_MESS_IS_METRIC.
AP00573543: Problems during simultaneous recording/simulation, if the MTS log
            file is active (base 06.05.72.00 or higher)+


Error corrections and improvements in ShopMill 06.04.19
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AP00696254: G code editor error correction (as of Basis 06.05.75.00)
AP00665308: GP - unassigned input line within contour is assigned with RND=2 (as of
Basis
            06.05.75.00)
          - Hotfix 1 SM 06.04.16 coolant shortly OFF
AP00522129: 3D simulation: Interface signal DB19.DBX20.6 is not output. (as of Basis
            06.05.75.00)
AP00611819: 3D simulation: Sporadic exception (as of Basis 06.05.75.00)
AP00641105: Exception upon opening Wizard screenforms (as of Basis 06.05.75.00)
AP00665485: Highly sporadically (once a day), the HMI becomes inoperable. (as of
Basis 06.05.75.00)
AP00665308: Unassigned input line within contour is assigned with RND=2 (as of Basis
            06.05.75.00)
AP00615477: Standard display MDs to metric / inch changeover (as of Basis
            06.05.75.00)
AP00497750: Error correction regarding the crash occurring when calling up the
function cmm_dd_download
- If the simulation NC on the PC is active, various PLC accesses still occur
AP00611261: Search/replace characters within G code programs: With cursor movement
            endless loop and Wizard overlay
AP00461951: Setting of MD 18351 not variable but minimal
AP00677396: DT-AP00694587: G58 incorrectly displayed in the TSM screenform with
undefined G fct.
AP00696254: G code editor error correction (Basis 06.05.76.00)
AP00621136: Tool management: Display problem with tool wear (Basis
            06.05.77.00)
AP00706468: DT-AP00708613: Redefined G codes (G58) cannot be selected directly in the
TSM
            screenform
AP00612983: DT-AP00710492: Graphic display (line graphics) of programming blocks =>
            Initialization of graphic files during startup (Basis 06.05.77.00)
AP00703751: Temporarily slow Program Manager changeover if Acrobat Reader
            was open (corrected with HMI-Ad-SW 06.04.32 HF4)
AP00705854: Temporarily the program is not displayed in the Program Manager
(corrected with HMI-
             Ad-SW 06.04.32.05)

Error corrections and improvements in ShopMill 06.04.20
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AP00697952: DT-AP00698294: Blanks definiton in inch: faulty scaling in X and
            Y in the simulation (as from base 06.05.78.00)
AP00682097: DT-AP00713805: Alarms / messages not displayed after restart of
            ShopMill/ShopTurn
AP00713101: DT-AP00715798: During multiple clamping G500 generated
AP00717958: DT-AP00718434: SM display of number of work offsets (table)
            faulty
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AP00713101: DT-AP00724661: During multiple clamping G500 generated
AP00732486: DT-AP00732834: Loading / unloading of tools: sporadic message: "Please wait: TOOLMAN being updated" (as from base 06.05.78.00)
AP00748981: DT-AP00749004: SK block search concealable per bit
AP00775785: DT-AP00775826: SM BA manual feed unit displayed in mm/U instead of in mm/min
AP00620779: DT-AP00620861: JobShop on HMI Adv: Header may not appear
AP00513021: DT-AP00627056: SM program block display BA-AUT wrong after switchover in editor (G-Code)
AP00603651: DT-AP00702601: In GP, the free G-Code line is distorted (as from base 06.05.78.00)
AP00661545: DT-AP00673801: SM sporadically after time without operation "PCU 20 image frozen,
softkeys without function."
AP00561416: DT-AP00587631: Memory problem in subprogram file Alarm 112211

Error corrections and improvements in ShopMill 06.04.21
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AP00839729: DT-AP00845085: Starting point "auto" is not approached during pocked milling.
AP00871067: DT-AP00871493 PR:AP00868465: Alarm 61099 “Internal cycle error (2)“ triggered after swivelling from the return cycle (rounding error).
AP00890947: DT-AP00900377: PR AP00890820: Rotary axes are not swivelled back after tool change
AP00908990: DT-AP00914966: Incorrect speed after SSL. The collected speed is only output if the new tool is identical to the previous tool (cycle E_S_ASUP)
AP00890940: DT-AP00900357: Swivelling: Tool retraction with tool change dependent on the program structure -> _E_JS_PRG. (GUD7_JS, E_END, E_HEAD adjusted)
AP00871067: DT-AP00871493: Alarm 61099 triggered after swivelling from the return cycle.
AP00823476: DT-AP00826885: SM retraction with "swivelling in JOG" also performed with "Tool retraction no".
AP00882702: DT-AP00883341: No log file created for MTS simulation (cdf resp. tdf file)! (As from basis 06.05.79.00)
AP00844931: DT-AP00857852: GP - Radius to the following element is inserted in the additional command line (as from basis 06.05.79.00)
AP00854035: DT-AP00854265: GP - SM: Contour generator: Double chamfer in the program after chamfer editing. (As from basis 06.05.79.00)
AP00829200: DT-AP00830179: 112400 Alarm "Not provided in the tool management" with , or ;
AP00771577: DT-AP00867742: SM: The simulation is not always started
AP00801740: DT-AP00804069: Tool measuring under program interpreter problem with basic reference
AP00845526: DT-AP00853894: SM Incorrect tool display during simulation with 3nd cutting edge
AP00851597: DT-AP00853924: Tools the names of which comprise commas with multiple clamping
AP00853848: DT-AP00853950: SM: Automatic. Left screen empty with basic block display.
AP00884189: DT-AP00893273: SM SK "inch" cannot be influenced via MD9182 USER_CLASS_INCH_METRIC
AP00921358: DT-AP00921386: Evaluate spindle mode after SSL. Position additional axis only if no spindle or not in spindle mode. (e_s_asup)
AP00705883: DT-AP00705957: PR-AP00698901 display of program directories on a network drive
AP00948495: DT-AP00948710: Detect tool life expiry

Error corrections and improvements in ShopMill 06.04.23
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The software version comprises a new BIOS (Vers 2.0) which supports all Siemens SINUMERIK 1GB CF cards, however only with PCU20 MLBF ..._AA2 Version B (or later).